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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,035	06/27/2003	Harold P. Barber SR.	1309-1018	8432

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EXAMINER	
LOBO, IAN J	

ART UNIT	PAPER NUMBER
3662	

DATE MAILED: 06/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/609,035	BARBER, HAROLD P.	
	Examiner	Art Unit	
	Ian J. Lobo	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-33 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-33 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 10/03, 11/03.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber et al ('822) when taken in view of Lunde et al ('056) or Regnault ('609) or Carroll et al ('828) and Wood et al ('241).

Barber et al discloses a seismic signal signaling apparatus. The apparatus includes a support frame (14) and an air gun array (12). The air gun array is mounted to the support frame in a manner such that a tapered, heavy-centered point source seismic signal is generated when firing the air gun array.

The difference between claim 11 and Barber et al is the claim further includes a gps receiver to which Barber et al is silent.

The patents to Lunde et al, Carroll et al and Regnault each discloses an underwater seismic signaling apparatus that includes a seismic source array and a gps receiver associated therewith. Specifically, Lunde et al shows gps receiver (Fig. 7, element 90), Regnault shows (Fig. 2a, element 500) shows a gps receiver and Carroll et al shows gps receiver (23). Wood et al teaches that gps receivers are often used in seismic data gathering systems for providing enhanced geographic coordinates and system clock.

Thus, in view of the well known use of gps receivers with underwater seismic source arrays as shown by Lunde et al and Regnault, and the advantages of gps receivers in seismic data gathering systems as taught by Wood et al, it would be obvious to one of ordinary skill in this art to modify the Barber et al air gun array to include a gps receiver Claim 11 and dependent claims 12-14 are thus, obvious over the combination of the aforementioned prior art.

3. Claims 1-4, 9, 10, 15, 20, 21 and 23-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber et al ('822) when taken in view of Dolengowski ('046).

Barber et al discloses a seismic signal signaling apparatus and method of seismic signaling. The apparatus includes a support frame (14) and an air gun array (12). The air gun array is mounted to the support frame in a manner such that a tapered, heavy-centered point source seismic signal is generated when firing the air gun array. The method includes deploying the seismic signaling apparatus in the water and firing the air guns in the array.

The difference between claim 1 and 23 and Barber et al is the claims further includes at least one shock absorbing member. Barber et al merely discloses the use of chains (36).

The patent to Dolengowski discloses an air gun seismic array. Of special interest with respect to the instant claims is the disclosure on col. 3, lines 25-64, wherein it is taught that when the air guns of an array are fired simultaneously, severe explosive shock energy that is damaging to the structure and frame of the array occurs. This

explosive energy further severely damages the chains, such as those used in Barber et al, which connect the air guns. Dolengowski teaches the use of shock absorbing members to absorb the force generated by the air gun array.

Thus, in view of Dolengowski, it would be obvious to one of ordinary skill in the art to modify Barber et al to include at least one shock absorbing member attached to the air guns so as to absorb the damaging explosive energy and retain the integrity of the air guns array. Claims 1 and 23 are so rejected.

Per claim 15, note that Dolengowski discloses both horizontal shock absorbing members and vertical shock absorbing members.

Dependent claims 2-4, 9, 10, 20, 21 and 24-32 are further provided by the combination of the above noted prior art.

4. Claims 1, 5-8 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber et al when taken in view of Cappelen et al ('922).

Barber et al discloses a seismic signal signaling apparatus and method of seismic signaling. The apparatus includes a support frame (14) and an air gun array (12). The air gun array is mounted to the support frame in a manner such that a tapered, heavy-centered point source seismic signal is generated when firing the air gun array. The method includes deploying the seismic signaling apparatus in the water and firing the air guns in the array.

The difference between claim 1 and 15 and Barber et al is the claims further includes at least one shock absorbing member. Barber et al merely discloses the use of chains (36).

The patent to Cappelen et al discloses an air gun seismic array. Of special interest with respect to the instant claims is the disclosure with respect to figures 2-4 wherein it is taught the use of shock absorbing members to absorb the force generated by the air gun array.

Thus, in view of Cappelen et al, it would be obvious to one of ordinary skill in the art to modify Barber et al to include at least one shock absorbing member attached to the air guns so as to absorb the damaging explosive energy and retain the integrity of the air guns array. Claims 1 and 15 are so rejected.

Dependent claims 5-8 and 16-19 are further obvious over combination of the above references (see especially figures 2 and 3).

5. Claims 22 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber et al in view of Dolengowski as applied to claim 15 and 23, respectively, above, and further in view of Lunde et al ('056) or Regnault ('609) or Carroll et al ('828) and Wood et al ('241).

The difference between claim 22 and 33 and Barber et al is the claim further includes a gps receiver to which Barber et al is silent.

The patents to Lunde et al, Carroll et al and Regnault each discloses an underwater seismic signaling apparatus that includes a seismic source array and a gps

receiver associated therewith. Specifically, Lunde et al shows gps receiver (Fig. 7, element 90), Regnault shows (Fig. 2a, element 500) shows a gps receiver and Carroll et al shows gps receiver (23). Wood et al teaches that gps receivers are often used in seismic data gathering systems for providing enhanced geographic coordinates and system clock.

Thus, in view of the well known use of gps receivers with underwater seismic source arrays as shown by Lunde et al and Regnault, and the advantages of gps receivers in seismic data gathering systems as taught by Wood et al, it would be obvious to one of ordinary skill in this art to modify the Barber et al air gun array to include a gps receiver Claim 22 and 33 are thus, obvious over the combination of the aforementioned prior art.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian J. Lobo whose telephone number is (571) 272-6974. The examiner can normally be reached on Monday - Friday, 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on (571) 272-6979. The fax phone

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ian J. Lobo
Primary Examiner
Art Unit 3662

ijl